

Remarks

Claims 1 and 15 have been cancelled, Claim 17 has been added. Thus, claims 2-14 and 16-17 remain pending.

The claims stand rejected under 35 U.S.C. §103 over the newly cited reference to Hatamiya (5,211,906) in view of the secondary references previously applied for the reason that Hatamiya et al. disclose the applicant's claims except for top-entry control rods, and control rod drives within the reactor shroud.

The applicant knows the existence of the structure of the top-entry control rods, and it is to be noted that the subject feature of the present invention does not reside in such feature.

That is, as mentioned before, as described in the original specification, the main object of the present invention is to effectively cool the wall of the dry well. To achieve this object, the boiling water reactor power plant of the present invention is provided with the reactor containment vessel having a double-wall structure made from multiple steel plates having an inner hollow structure and is communicated with the passive containment vessel cooling system (PCCS) pool so that a cooling water naturally flows and circulates in the hollow portion of the double-wall structure to effectively cool the dry well.

As mentioned, the structure of the present invention is for particularly cooling the dry well, and not the suppression pool as in the Hatamiya structure.

That is, as shown in FIG. 5 of the Hatamiya reference, indicated by the Examiner, the reactor containment vessel 10 is a double wall structure comprising an inner wall 14 and an outer wall 10, forming an inner hollow structure 15 over at least a portion of the reactor containment vessel (lines 4-1 from bottom, page 3 of the official paper).

However, as can be seen from FIG. 5, the outer wall 10 has an inner surface contacting the suppression pool 11 and the inner wall 14 is arranged inside thereof. Such double wall structure for cooling the suppression pool is different from the

double wall structure of the present invention. That is, the double wall structure of Hatamiya reference is formed only to the outer side of the reactor containment vessel and no means is arranged inside thereof (reactor pressure vessel 1 side.

On the other hand, according to the present invention, the containment vessel has a cylindrical hollow structure in which the dry well is disposed inside the suppression pool. That is, as disclosed on page 22, lines 13-22 of the original specification, as shown in Fig. 2, the pressure containment vessel 401 has a dual-cylinder structure comprising an inner wall 401a for forming the dry well 231 about the outer circumference of the nuclear reactor pressure vessel 201 and an. outer wall 401b for forming a pressure suppression pool 404 to the outer side of the inner wall 401a.

Then, with reference to the illustration of FIG. 10, when the cooling water is introduced, the heat exchanging (i.e., cooling) is performed by constructing the walls of the pressure containment vessel into the double-wall structure 402 and circulating the cooling water inside these walls to thereby cool the outer side of the containment vessel, that is, the dry well. Furthermore, since the lower dry well 231 and the pressure suppression pool 404 are connected by means of coupling pipe 430 at two points, the thermal convention flow is created therebetween, thus performing an effective cooling of the dry well.

Thus, according to the structure of the present invention, the double-wall structure in which the cooling water circulates to cool the dry well is arranged in the inner side of the suppression pool as well as the outer side thereof with reference to the sectional view of FIG. 2 (10) for cooling the dry well. On the other hand, in the Hatamiya structure of FIG. 5, the double wall structure merely exists on the outer side of the suppression pool for cooling it.

As previously mentioned, (1) the object of the present invention is to provide an improved structure for effectively cooling the dry well (not the suppression pool) and (2) this structure is constituted by the double wall structure of the inner and outer wall sections of the containment vessel into which the cooling water circulates.

These structural features are different from those of the Hatamiya reference, which are not known from the other references cited.

Furthermore, a plurality of ribs are provided on the inner wall surface of the double-wall structure.

According to this structure, the cooling water in the containment vessel cooling pool disposed above the suppression pool naturally circulates to thereby effectively cool the dry well. For example, in a case of loss of coolant accident (LOCA), it is possible to cool the containment vessel using natural force only by means of water passing through the gaps formed by the double-wall structure communicated with the passive containment cooling system (PCCS) pool. That is, although the water inside the containment vessel reaches a high temperature, the cooling water at the outside of the containment vessel passing the double-wall structure is not heated and remains at a low temperature, thus performing the natural circulation of the cooling water carrying out the heat-exchanging function, thereby cooling the dry well effectively.

The amendments made herein replace claim 15 with new claim 17 and change the dependencies of the dependent claims from claim 15 to claim 17. Claim 17 is similar to claim 15 and recites the salient limitations of the double wall structure discussed above. Moreover, all of the claims have been reviewed in an attempt to remove any statements of intended use as objected to by the examiner at the bottom of page 6 of the office action. If the examiner detects any further objectionable phrases, he is requested to point these out to applicant for correction.

In view of the arguments set forth above it is submitted that applicant's double wall structure as recited in applicant's independent claims is patentable over the art of record. Applicant's dependent claims are deemed patentable at least for the same reasons applicable to the independent claims from which they depend.

A new formal drawing replacing Figure 2 is enclosed making the changes approved by the examiner.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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FOLEY & LARDNER
Washington Harbour
3000 K Street, N.W., Suite 500
Washington, D.C. 20007-5143
Telephone: (202) 672-5407
Facsimile: (202) 672-5399

By 

David A. Blumenthal
Attorney for Applicant
Registration No. 26,257